

REMARKS/ARGUMENTS

The Office Action rejected claims 1-4, 9-11 and 14 under 35 U.S.C 102(b) as anticipated over Ishizuka et al. (US patent 5,531,834). Further, claims 5-8, 12, 13, 15, 16, and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka et al. (US patent 5,531,834) in view of Qian et al. (US patent 6,447,636).

Applicant has amended the claims to overcome prior art limitations as cited by the examiner. Specifically, applicant has disclosed a "3-dimensional helical ribbon electrode" in claim 1 with further definitions of the 3-dimensional helical ribbon electrode in newly added claims 21-23. Also applicant has disclosed "3-dimensional" helical ribbon electrode having "an elongated cross section" in independent claim 24 (newly added, revision of canceled claim 20).

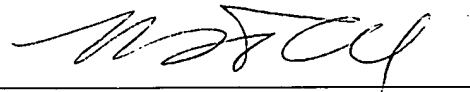
With the disclosure of a 3-dimensional helical ribbon electrode, applicant submits that Ishizuka did not show the invention as claimed: a 3-dimensional helical ribbon electrode coupled to the output of the plasma generator. The helical ribbon electrode of the present invention is 3 dimensional, composed of multiple turns in different planes, and all the turns of the electrode are essentially similar. Ishizuka's flat coil electrode is a 2 dimensional inward spiral, in contrast to the present invention helical ribbon electrode being a 3-dimensional cylindrical helix that forms many spiral turns in the direction perpendicular to the plane formed by the spiral turns.

With the disclosure of "3-dimensional" helical ribbon electrode having "an elongated cross section", applicant submits that Qian did not show the invention as claimed: a 3-dimensional helical ribbon electrode adapted to excite the plasma, the helical ribbon electrode having an elongated cross section. Qian's antenna 102 is always a coil with a circular cross section as shown repeatedly in Figs. 1, 4A, 4B, 4C, 4D, and 4E. In contrast, the helical ribbon electrode of the present invention has a elongated cross section with a width much larger than the thickness, about 100 times to 10000 larger.

In sum, applicant submits that both Ishizuka and Qian do not show a 3-dimensional helical ribbon electrode with elongated cross section as disclosed in the current invention. Since this element is missing, and since this element has many significant advantages over the prior arts of Ishizuka and Qian, neither Ishizuka nor Qian can render the claims obvious. Withdrawal of the rejection is respectfully requested.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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